What we Claim is:

1. A compound metal aliphatic acryl alkoxide having the general formula of $M(-OR_1-CO-CR_2=CR_3R_4)_n$, wherein, the M is a metal element or a mixture of metal elements. The metal can be selected from the metals in the periodic table except toxic metal such as lead. The metals with the atomic number greater than the silicon element is preferred. The n value is dependent on the valence of metal. Where R_1 is a straight chain alkyl group or branched alkyl group. The straight chain is preferred with the formula of $(-CH_2-)_n$. Where n is equal to 1 to 12 and n is equal to 1 to 4 is preferred. Where R_2, R_3, R_4 can be a hydrogen atom or straight chain alkyl group $(-CH_2-)_n$ or branched alkyl group. The straight chain alkyl group is preferred, n is equal to 1 to 12 and n is equal to 1 to 4 is preferred.
2. A compound metal aliphatic acryl alkoxide having the general formula of $M(-OR_1-CO-CR_2=CR_3R_4)_n$ as claimed in claim 1, wherein said compound is prepared from exchanging acryl alcohol with metal alkoxides.
3. A compound metal aliphatic acryl alkoxide having the general formula of $M(-OR_1-CO-CR_2=CR_3R_4)_n$ as claimed in claim 1 or 2, wherein said compound is hydrolyzed into a mixture of metal oxide nanoparticles and acrylate monomer. The particles are well dispersed in the acrylate matrix. Then the mixture is polymerized by free radical polymerization. An organic/inorganic material is formed that contains metal oxide nanoparticle dispersed in polyacrylate.
4. An organic/inorganic hybrid material contains metal oxide nanoparticle dispersed in polyacrylate as claimed in claim 3, wherein said the material exhibits high refractive index and low birefringence.
5. An organic/inorganic hybrid material contains metal oxide nanoparticle dispersed in polyacrylate as claimed in claim 3, wherein said the material is useful for optical applications.

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